

IN THE CLAIMS:

This listing of the claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) An apparatus for demineralizing ~~osteoinductive~~ bone, comprising:

a container for holding a demineralization solution comprising at least one acid capable of demineralizing bone and at least one piece of the ~~osteoinductive~~ bone;

a vessel cap covering said container, said vessel cap containing a first port, and a second port for introducing the ~~osteoinductive~~ bone into said container;

a filter tube assembly disposed within said first port for transporting said demineralization solution into and out of said container, wherein said filter tube assembly comprises a filter mesh having a mesh size sufficient for the demineralization solution to be removed from the container through the filter tube assembly at a rate of from about 0.25 liters per minute to about 4 liters per minute, and being wherein the filter tube assembly is configured to exclude pieces of bone particles larger than a prescribed size;

a pump for removing said demineralization solution from said container; and

a first tube connecting said first port to said pump,

wherein the container, the vessel cap, the filter tube assembly, and the first tube comprises a material that remains stable when contacted with the demineralization solution.

2. (canceled)

3. (original) The apparatus of claim 1, further comprising a port filter assembly disposed within said second port for maintaining a sterile environment in said apparatus.

4. (original) The apparatus of claim 3, wherein said port filter assembly provides a gas permeable seal.

5. (original) The apparatus of claim 3, wherein said port filter assembly comprises a fritted filter disposed within an O-ring, said O-ring surrounded by a retaining ring.

6. (currently amended) The apparatus of claim 1, wherein said filter tube assembly is configured to exclude bone particles larger than 300 μ .

7. (currently amended) The apparatus of claim 1, wherein said filter tube assembly is configured to exclude bone particles larger than 225 μ .

8. (currently amended) The apparatus of claim 1, wherein said filter tube assembly is configured to exclude bone particles larger than 125 μ .

9. (canceled)

10. (currently amended) The apparatus of claim 1 ~~claim 9~~, wherein said material is ~~selected from the group consisting of Teflon~~ polytetrafluoroethylene, polyester, glass, and or ceramic.

11. (original) The apparatus of claim 1, further comprising a second tube connecting said second port to a vessel coupled to said pump.

12. (canceled)

13. (canceled)

14. (currently amended) The apparatus of claim 1 ~~claim 11~~, wherein said pump is operated at a rate of about 0.5 to 2.0 liters per min.

15. (currently amended) The apparatus of claim 1 ~~claim 11~~, wherein said pump is operated at a

rate of about 1.0 liter per min.

16. (canceled)

17. (canceled)

18. (canceled)

19. (canceled)

20. (currently amended) An apparatus for demineralizing ~~osteoinductive~~ bone, comprising:

a container for holding a demineralization solution comprising at least one acid capable of demineralizing bone and at least one piece of the ~~osteoinductive~~ bone;

a vessel cap covering said container, said vessel cap containing a first port, and a second port for introducing the ~~osteoinductive~~ bone into said container;

a filter tube assembly disposed within said first port for transporting said demineralization solution into and out of said container, wherein said filter tube assembly comprises a filter mesh having a mesh size sufficient for the demineralization solution to be removed from the container through the filter tube assembly at a rate of from about 0.25 liters per minute to about 4 liters per minute, and being wherein the filter tube assembly is configured to exclude pieces of bone particles larger than 125 μ , and

~~said filter containing a plurality of openings along a predetermined portion thereof;~~

a pump for removing said demineralization solution from said container; and

a first tube connecting said first port to said pump,

wherein the container, the vessel cap, the filter tube assembly, and the first tube comprises a material that remains stable when contacted with the demineralization solution.

21. (canceled)

22. (canceled)

23. (new) The apparatus of claim 1, wherein the at least one piece of ~~osteoinductive~~ bone comprises ground bone, particulate bone, bone chips, bone strips, bone cubes, bone fibers, or essentially intact bone.

24. (new) The apparatus of claim 1, wherein the mesh size is from about 100 μ to about 300 μ .

25. (new) The apparatus of claim 1, wherein the mesh size is from about 100 μ to about 225 μ .

26. (new) The apparatus of claim 1, wherein the mesh size is about 125 μ .

27. (new) The apparatus of claim 1, further comprising a shaker coupled to the container having sufficient power to keep the at least one piece of bone suspended in the demineralization solution.

28. (new) The apparatus of claim 1, further comprising a sonicator coupled to the container having sufficient power to keep the at least one piece of bone suspended in the demineralization solution.

29. (new) The apparatus of claim 1, wherein the at least one acid is hydrochloric acid, phosphoric acid, citric acid, formic acid, acetic acid, propionic acid, gluconic acid, malic acid, tartaric acid, fumaric acid, or succinic acid.

30. (new) The apparatus of claim 1, wherein the at least one acid is hydrochloric acid.

31. (new) The apparatus of claim 1, wherein the at least one piece of bone has an average size of from about 120 μ to about 860 μ .

32. (new) The apparatus of claim 1, wherein the filter mesh comprises polyester monofilament.

33. (new) The apparatus of claim 1, wherein the container has a volume of from about 2 liters to about 8 liters.

34. (new) The apparatus of claim 1, wherein the container has a volume of from about 3 liters to about 6 liters.

35. (new) The apparatus of claim 1, further comprising a thermal wrap about the container.

36. (new) The apparatus of claim 1, further comprising a mixing paddle disposed within the container.

37. (new) The apparatus of claim 20, wherein the at least one piece of bone comprises ground bone, particulate bone, bone chips, bone strips, bone cubes, bone fibers, or essentially intact bone.

38. (new) The apparatus of claim 20, further comprising a shaker coupled to the container having sufficient power to keep the at least one piece of bone suspended in the demineralization solution.

39. (new) The apparatus of claim 20, further comprising a sonicator coupled to the container having sufficient power to keep the at least one piece of bone suspended in the demineralization solution.

40. (new) The apparatus of claim 20, wherein the at least one acid is hydrochloric acid, phosphoric acid, citric acid, formic acid, acetic acid, propionic acid, gluconic acid, malic acid,

tartaric acid, fumaric acid, or succinic acid.

41. (new) The apparatus of claim 20, wherein the at least one acid is hydrochloric acid.

42. (new) The apparatus of claim 20, wherein the filter mesh comprises polyester monofilament.

43. (new) The apparatus of claim 20, wherein the container has a volume of from about 2 liters to about 8 liters.

44. (new) The apparatus of claim 20, wherein the container has a volume of from about 3 liters to about 6 liters.

45. (new) The apparatus of claim 20, further comprising a thermal wrap about the container.

46. (new) The apparatus of claim 20, further comprising a mixing paddle disposed within the container.